

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPELLANT: Steven R. Miller                    ART UNIT: 3616  
SERIAL NO.: 10/632,546                    EXAMINER: Gooden, Jr., Barry J.  
FILED: 08/01/2003  
FOR: **LATERAL LEAF SPRING WITH INBOARD  
AIR SPRING TRAILER SUSPENSION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

**APPEAL BRIEF - REVISED**

Appellant submits this revised Appeal Brief in response to the Notice of Non-Compliance mailed on May 16, 2007. The Grounds of Rejection section has been amended to address the issues raised in the Notice. No other revisions have been made.

**REAL PARTY IN INTEREST**

The real party in interest ArvinMeritor Technology, LLC is the Assignee of all right and title in this Application from the inventors, and this assignment was recorded on April 5, 2004 at Reel/Frame 015182/0420.

**RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

**STATUS OF CLAIMS**

Claims 1-15 are presently pending in the application and stand finally rejected. The rejections of claims 1-15 are being appealed.

**STATUS OF AMENDMENTS**

The Appellant's After Final Amendment filed on November 13, 2006 has not been entered. Appellant made amendments as suggested by the Examiner. Specifically, the Examiner made specific recommendations as to claim language to overcome the claim objection and §112, second paragraph rejections. The Examiner refused to enter all of the amendments claiming the amendments raise new issues. This is not accurate since the Examiner had already considered and anticipated these very amendments by making the suggestions. The amendments to claims 4, 7 and 11 were suggested by the Examiner. The amendments to claims 2, 5, 12 and 13 address informalities that also raise no new issues and do not impact the patentability of the claims.

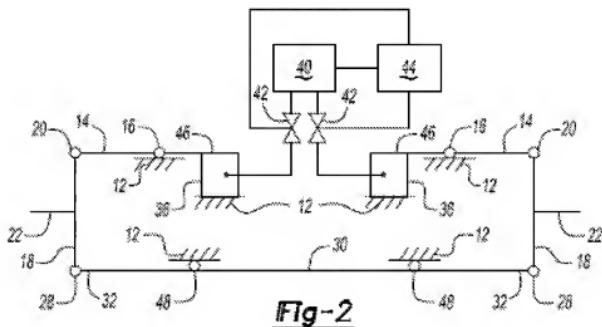
There is no justification under the Rules for the Examiner to refuse entry of these amendments. The Examiner's refusal to enter the amendments unnecessarily prolongs prosecution of the application and unnecessarily complicates the issues on appeal. No new issues were raised in Appellant's After Final Amendment.

**SUMMARY OF THE CLAIMED SUBJECT MATTER**

A vehicle suspension system 10 is shown schematically in Figure 2, shown below. Referring to page 4, lines 2-13 (paragraph 13), the system 10 includes a frame 12 that may be

constructed from one or more structural members and/or brackets. Upper control arms 14 are pivotally supported by first pivotal connections 16 on the frame 12. Knuckles 18 are supported by a connection 20 on an end of the upper control arm 14. The knuckle 18 includes a spindle 22 for rotationally supporting a wheel end. A lateral leaf spring 30 is arranged between the knuckles 18, and the opposing ends 32 are connected to the knuckles at second pivotal connections 28. The lateral leaf spring 30 may replace the lower control arms and may be constructed from a suitable composite. The lateral leaf spring 30 may be pivotally connected to the frame 12 by connections 48.

Regarding dependent claims 8 and 15, the knuckles 18 rotate about the axis defined by the connections 20 and 28 in response to a steering input.



Referring to page 4, lines 14-22 (paragraph 14), the system 10 includes upper control arms 14 that have portions 46 extending from the first pivotal connection 16 away from the connection 20. Regarding independent claims 1 and 9, air springs 36 may be arranged between the portions 46 and

the frame 12. It is to be understood that the air springs 36 may also be arranged in other locations. For example, the air springs 36 may be arranged between the leaf spring 30 and the frame 12. The air springs 36 receive air from a pressurized air source 40. The pressure to the air springs 36 is metered by valves 42 that are controlled by a controller 44 that may also be connected to the pressurized air source 40. The pressurized air system may also provide load leveling and other desired suspension control features. Referring to page 5, lines 8-12 (paragraph 15), since independent air springs 36 are used, the ends of leaf spring 30 may be damped independently through the upper control arms 14. One of the air springs 36 may provide independent damping to the deflected end of the leaf spring 30 through the upper control arms 14.

**GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Appellant seeks review of the following grounds of rejection:

- I. Whether the rejection of claims 4, 7 and 8 under §112, second paragraph are proper under the proposed amendments to those claims and as those claims are currently written?
- II. Is there motivation to modify deGoncourt when viewing the teachings of deGoncourt and Pees as a whole in support of the rejection of claims 1, 2, 4-9 and 11-15 under §103?
- III. Is there motivation to modify Young when viewing the teachings of Young and Merkle as a whole in support of the rejection of claims 1-4, 8-11 and 15 under §103?

## ARGUMENTS

### §112 rejections:

Claims 4, 7 and 8 were rejected under §112, second paragraph as being indefinite. The Appellant's After Final Amendment filed on November 13, 2006 should have been entered for the reasons set forth above under the Status of Amendments section. The Examiner's proposed amendments appear to be directed to changes that improve readability in the Examiner's opinion. The claims, however, are not indefinite. This is evident, for example, by the Examiner's understanding of their meaning when making the proposed changes to the claims. That is, the meaning of each of the claims was sufficiently clear such that the Examiner knew what limitations they included and how they should be interpreted.

### §103 rejections:

*deGoncourt and Pees do not suggest the claimed features when taking the teachings as a whole.*

Claims 1, 2, 4-9 and 11-15 were rejected under §103 over the deGoncourt in view of Pees. deGoncourt lacks the claimed air springs and valve related limitations. The Examiner relies upon Pees to provide these features. The Examiner argues that the motivation to modify deGoncourt with the elements of Pees would be "to provide optimize vehicle body isolation and damping of both the body and wheel axle at their natural frequencies." The Examiner takes this language directly out of the Pees Abstract. This motivation is improper and not supported by the teachings of the references.

The base reference, deGoncourt teaches a conventional hydraulic shock absorber. In order for the Examiner to provide a motivation in support of a *prima facie* case of obviousness, the Examiner must provide some sort of teaching that would suggest to one or ordinary skill in the art that a conventional hydraulic shock absorber should be replaced with an air spring based upon the teachings of the references as a whole. That is, the Examiner must establish that the teachings of the references as a whole would indicate that the air spring has some benefit over the hydraulic shock absorber. The Examiner cannot provide such a motivation.

deGoncourt does not in any way suggest that its hydraulic shock absorber is somehow deficient with respect to natural frequencies. Pees teaches an air spring damper that is improved relative to prior art air spring dampers. The Examiner essentially cuts and pastes the motivation out of the Pees Abstract, and in doing so takes Pees' teaching out of context. That is, the benefits described in Pees are a result of structural improvements and features that were not present in prior art air spring dampers. The Examiner attempts to imply that Pees teaches that shock absorbers are inferior to air springs with respect to natural frequencies. This is not expressly or implicitly suggested by either reference. The Examiner must take the teachings of the references a whole, rather than take snippets of language from the references out of context.

For example, Pees in column 1 references frequency sensing damping, an elastomeric air sleeve and an orifice restrictor. The incorporation of these features in the Pees air spring damper provides optimized vehicle body isolation and damping at natural frequencies relative to prior air spring dampers. That is, no comparison is made in Pees between its invention and conventional hydraulic shock absorbers. Accordingly, the motivation recited by the Examiner when taken in

its context and taking the teachings of Pees and deGoncourt as a whole cannot be relied upon given the teachings of Pees. The rejection is improper and must be withdrawn.

Further, claims 8 and 15 are allowable over deGoncourt and Pees since neither teach a rotatable (steerable) knuckle.

*Young and Merkle do not suggest the claimed features when taking the teachings as a whole.*

Claims 1-4, 8-11 and 15 were rejected over §103 over Young in view of Merkle. Young lacks the laterally spaced apart air springs recited in the claims. The Examiner relies upon Merkle to provide this feature, and argues the motivation to modify Young would be "to provide a simpler construction, improve force transmission, reliable and inexpensive to manufacture spring support." The motivation argued by the Examiner is improper for reasons similar to those discussed above relative to Pees. That is, the Merkle air spring is an improvement over prior art air springs such as the one described in German Patent No. 1021733 referenced in the Merkle Background. Statements in Merkle relating to the simpler construction, improved force transmission, etc. in no way relate to conventional hydraulic dampers. Accordingly, it is improper for the Examiner to conclude that one of ordinary skill would be motivated to replace the hydraulic damper of Young with the air spring dampers taught in Merkle. The rejection is improper and must be withdrawn.

Further, claims 8 and 15 are allowable over Young and Merkle since neither teach a rotatable (steerable) knuckle.

In the response to Arguments Section on page 6 of the September 11, 2006 Office Action, the Examiner emphasizes that the art used in making both §103 rejections is analogous. The

Examiner then concludes that the limitations provided by the secondary reference "would be a suitable component to replace" an element from the primary reference.

The Examiner appears to equate the idea of references being analogous as meaning the references automatically render a claimed invention obvious if all the elements are found. Applicant agrees the references are analogous. Analogous art merely means that the references are eligible for consideration in making an obviousness rejection. Analogous art does not establish that elements in the references are necessarily suitable replacement components. The Examiner must look at the teachings of the references as a whole and establish that there is some sort of suggestion or motivation to one of ordinary skill in the art to modify the base reference to include the missing limitations.

**CLOSING**

For the reasons set forth above, the final rejection of all claims is improper and must be reversed. An early indication of such is earnestly solicited.

Respectfully submitted,

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**CLAIMS APPENDIX**

1. A vehicle suspension system comprising:
  - a frame;
  - a pair of laterally spaced apart control arms pivotally supported by said frame at first pivotal connections;
  - a knuckle connected to each of said control arms;
  - a lateral leaf spring interconnected between said knuckles; and
  - laterally spaced apart air springs, with one arranged between said frame and one of each of said control arms.
2. The system according to claim 1, wherein said control arms are upper control arms, and one of each of said air springs is arranged between said frame and one of each of said upper control arm.
3. The system according to claim 2, wherein said upper control arms extend from said first pivotal connections to portions opposite said knuckles, said air springs arranged between said portions and said frame.
4. The system according to claim 2, wherein said lateral leaf air spring includes opposing ends that support said knuckles at second pivotal connections.

5. The system according to claim 1, wherein a pressurized air source is connected to said air springs providing a desired quantity of pressurized air to said air springs, and a controller connected to said air source determining said desired quantity.

6. The system according to claim 5, wherein said pressurized air source includes at least one valve actuated by said controller to provide said desired quantity.

7. The system according to claim 6, wherein said at least one valve is associated with each of said air springs with said valves being independently actuatable in response to commands from said controller.

8. The system according to claim 4, wherein axes extend through said first and second pivotal connections, said knuckles rotatable about said axes.

9. A vehicle suspension system comprising:
  - a pair of laterally spaced apart upper control arms pivotally supported at first pivotal connections;
  - a knuckle connected to each of said upper control arms;
  - a lateral leaf spring interconnected between lower portions of said knuckles; and
  - laterally spaced apart air springs, with one supported on one of each of said upper control arms and adapted to be supported on a frame that mounts the vehicle suspension system.
10. The system according to claim 9, wherein said upper control arms extend from said first pivotal connections to portions opposite said knuckles, said air springs supported on said portions.
11. The system according to claim 9, wherein said lateral leaf spring include opposing ends that support said knuckles at second pivotal connections.
12. The system according to claim 9, wherein a pressurized air source is connected to said air springs providing a desired quantity of pressurized air to said air springs, and a controller connected to said air source determining said desired quantity.

13. The system according to claim 12, wherein said pressurized air source includes at least one valve actuated by said controller to provide said desired quantity.

14. The system according to claim 13, wherein said at least one valve is associated with each of said air springs with said valves being independently actuatable in response to commands from said controller.

15. The system according to claim 11, wherein axes extend through said first and second pivotal connections, said knuckles rotatable about said axes.

**EVIDENCE APPENDIX**

None.

**RELATED PROCEEDINGS APPENDIX**

None.